

Why do the arts matter?

We have only begun to invent what will be possible ... Science has opened the door, but artistry and imagination will take us through it.

Paul Allen, Co-founder of Microsoft

Bertrand Russell was one of the greatest mathematicians and philosophers of the 20th century. In his final essay, written at the age of 95, Russell (1967) reflected that the time had come to ask whether his life's work had taught men and women "not to hate peoples other than their own". He concludes his final essay with: "There is an artist imprisoned in each one of us. Let [the artist] loose to spread joy everywhere."

Why did Russell, so late in his long and productive life, attach such importance to the arts? Perhaps he recognized that the arts enrich our lives. Perhaps it was because he understood, as Einstein did, that "the most beautiful thing we can experience is the mysterious ... the source of all true art and science" (cited in Clarkson, 2001, p. 6). Perhaps he had come to realize that the arts have formed a fundamental component of culture since the beginning of time - and that everything we think, feel, or know cannot be described by words alone.

Intrinsic Benefits of the Arts

Eisner (1991) describes imagination as "the engine of cultural and social progress" (p. 12). Experiences in the arts nurture imagination and creativity, both hallmarks of great thinkers and leaders: Many prominent scientists and inventors are also active in the arts (Zweig, 1986). But art doesn't benefit only the artist. The arts are beneficial not only to those who create art but also to those who experience those creations. Great works of art inspire, and the process of art-making can do the same. When a student writes a haiku poem, choreographs a dance, sketches a landscape, builds sets for a theatre performance, or improvises a piece of music with peers, the student has a chance to imagine, wonder, create, and learn. The arts provide daily opportunities for beauty and joy – for individuals in schools and in communities around the globe.

Studies in, about, and through the arts help students lead fulfilled lives. Students who lack arts experiences in their schooling will emerge undernourished by the end of their education. By contrast, those students whose schooling includes the arts will benefit throughout their lives, in a multitude of ways, by the intrinsic benefits that the arts bring to the quality of our lives.

Koopman (2005) provides an attractive and well-argued thesis on the importance of the arts. He claims that the arts are of fundamental value because of the "complete involvement from moment to moment when receiving, creating, or performing an art work. The arts present us with a manner of fulfilling our time" (p. 91). This notion of complete involvement from moment to moment is much like Csikszentmihalyi's (1990) notion of flow, that is, the sense of timelessness and absorption that can occur when one is deeply immersed in the process of art-making (see

also Custodero, 1998). Koopman (2005) continues with the claim that fulfilling experiences are a necessary condition for leading a happy life. He concludes:

Fulfilment reminds us of the temporal and dynamic character of our existence. To live is to live in time, from moment to moment, from episode to episode. The quality of our life is determined by the way we give shape to the abundance of time we have at our disposal. We have to engage in meaningful practices if we are to make something of our existence. If we do not, we are delivered - in Gadamer's words - to the tyranny of empty time: we are doomed either to a life of boredom or to a life filled with frenetic and futile activity. (p. 93)

The idea of the quality of life being embodied in the activities that occur moment to moment, or episode to episode, is mirrored by American author Annie Dillard's observation that how we live our days is, in fact, how we live our lives. Extending these claims implies that educating the child in the arts has, as its primary task, the provision of conditions whereby the child can take up worthwhile and engaging activities and see them through to completion – living moment to moment while engaged in those tasks. There is no question that there are basic forms of knowledge, skills, and dispositions towards learning that are essential to receive a full education and to function in society (what artist doesn't want her child to learn to read?) But people also need to develop habits and engage in activities that fulfill their time. That is, the conditions for leading a meaningful life are not only the static factors related to skill development, economic independence, or the possession of moral values (Koopman, 2005). The characterization of the quality of life also includes life as time lived. And it is perhaps in this latter respect that the arts matter most.

The Arts and the Development of Humanity

Ellen Dissanayake is a scholarly writer in the fields of anthropology, aesthetics, philosophy, and evolutionary biology. While some scholars take issue with aspects of her theoretical work (Davies, 2005), her main thesis – that art is essential to human life – is difficult to dispute. Dissanayake's examination of the place of arts in human life presents the view that the essence of art is "making special" (1995, p. 39), which she also calls "artifying" in later works (e.g., Dissanayake, 2000, 2003, 2007). She theorizes that the root purpose of all artistic activity, past and present, is to enhance particular aspects of the world and humanity by lifting out of the ordinary and "making special," whether it be with a birthday cake, a sculpture, or a Shakespearean play.

Dissanayake's definition of art, then, is as far reaching as the definition adopted for the purposes of the present review. She writes:

We now think of "art" as including its manifestations in all societies and all classes of people. We are more aware of art's communal and performative aspects and its frequently multimodal integrated nature in which song, dance, performance and visual spectacle all combine. Art is no longer considered automatically to be "distanced" from ordinary life and concerns. (Dissanayake, 2003, p. 245)

Dissanayake (2003) theorizes from an evolutionary perspective. She maintains that humans “have a specifiable biological nature that is the product of millions of years of adapting to the world in which they (and their ancestors) came into being” (p. 246). Her analyses demonstrate that art is one of the behavioural predispositions that fulfills our biological needs. She states, “Like language, [art] is inherent in human nature, and will emerge in every normal individual during normal development and socialization” (p. 246).

The most powerful part of Dissanayake’s argument is a set of five features that support her thesis that artification is adaptive to human evolution. The first of these is that *art-making is universal*, as it is “observable in every society or cultural group that is known, regardless of its degree of economic or technological development” (2003, p. 247). Second, the *investment of resources* in the arts – especially in pre-modern societies – is disproportionately greater than one would expect for a peripheral or unimportant undertaking. Dissanayake provides evidence that large amount of energy, time, and material resources were dedicated to the arts in pre-modern times, “often to the neglect of more apparently life-sustaining activities” (p. 247). The third feature is the *biological importance* of the events and conditions that are attached to the arts – that is, the biological importance of the aspects of daily life that are artified through ritual ceremonies concerned with “safety, subsistence, prosperity, health, social harmony, and the successful traversing of birth, death, and other life stages” (p. 247). Fourth is the fact that the *arts are associated with pleasure* – just like the other essential requirements of life such as food, sex, familiar surroundings, rest, conversation, and close relationships. People are drawn to decorated objects, music, dance, and well-told stories. Fifth, Dissanayake suggests that the *juvenile predisposition to the arts* – that is, the propensity of young children to spontaneously involve themselves in “artifying” or “making special” – is evidence that the arts are essential to the development of humanity. Without prompting, young children will:

make marks, decorate their bodies and possessions, move rhythmically to music, sing, make believe, engage in wordplay, and enjoy stories. If brought up in a milieu where others artify, these proclivities are easily developed. (Dissanayake, 2003, p. 247)

From this thesis, one can argue that it is the responsibility of the adults in the community – teachers, principals, and family – to provide a milieu that allows the child to develop his or her natural artistic proclivities.

What would such a milieu look like? Fundamentally, children’s art-making is supported when they are able to engage in the operations that characterize art-making in all modalities (i.e., visual, aural, and kineasthetic) and media (e.g., clay, pigment, wood, fibers; instrumental or vocal sounds; words; movements). Dissanayake (2003) identifies a set of five operations that allow the intentional act of making an ordinary object, material, or artifact extraordinary or special. These five operations are (a) formalization, (b) elaboration, (c) repetition, (d) exaggeration, and (e) surprise. So, for example, creating a musical composition involves *formalizing* the pattern or shape of the work, *elaborating* the composition through the embellishment of the melody with ornaments or supporting harmonies, *repeating* sections to bring coherence to the work, *exaggerating* aspects of the composition through changes in tempo or dynamics, and creating *surprise* by using an unexpected harmonic progression.

Fundamentally, then, Dissanayake (2003) holds that the biological predisposition to “artify” or “make special” through these five operations has been selected for humans, and further:

when expanded and utilized in ceremonies both relieves individual anxiety (individual-level selection) and aids group cohesiveness (group-level selection) so that individuals and groups who artified were more likely to survive and reproduce than individuals and groups that did not artify. (p. 254)

Csikszentmihalyi (1996) similarly claims that, “art helps us to construct meanings, not in the abstract sense of producing cognitive interpretations, but by producing personally relevant goals, responses, habits, and values” (p. 7). And should we need a daily reminder, the Gabrielle Roy quote that appears on the Canadian \$20 note will serve us well. Author Roy provocatively asks, “Could we ever know each other in the slightest without the arts?” This quote was selected by the Bank of Canada (2011) to emphasize that “arts and culture define who we are, as well as the system of beliefs, values, and customs we share as Canadians”. It is these customs and values that should form the backbone of arts education for the developing child.

It is true that there are other extrinsic – almost incidental – benefits of the arts that bear discussion. This discussion is important for two reasons. The first is that many educators, parents, politicians, and members of the general public surmise that the arts are valuable for the non-intrinsic benefits they bring to the study of other subjects. For this reason alone, the literature on arts and achievement bears scrutiny. But it is also important to consider the extrinsic or “bonus” benefits of the arts. Such ancillary benefits can bring additional strengths to the learning milieu of the developing child, especially if the arts help the child cultivate the dispositions and habits that bode well for learning in all forms. It is to these types of benefits that the discussion now turns.

The Arts and Achievement in Other Subjects

Perhaps there is no domain of education in which the issue of justification is so prominent as in arts education. The reason for this is the precarious position of the arts in general education. Arts educators are engaged in an ongoing battle to prevent the arts from being further marginalized, or even removed from the curriculum ... In such circumstances there is a great need for arguments demonstrating the importance of the arts in education... the overwhelmingly dominant type of justification of arts education appeals to its positive consequences for knowledge, skills, and dispositions that are not, or not typically, related to the arts themselves.

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A strident call to demonstrate how the arts might contribute to achievement in other subjects began in the 1980s and peaked in the 1990s, when arts programs all over North America were continually threatened with marginalization and removal from the curriculum. And while recent years have witnessed something of a return to “art for art’s sake”, the call for demonstrating how the arts are linked to achievement in other subjects continues. The genesis for this call was, in part, due to strategies developed by arts advocates to approach their local, regional, and provincial policy makers with evidence that would maintain or increase the presence of arts

education in schools in the wake of the strong conservative education policies described previously (Beveridge, 2010).

But the research evidence linking arts and achievement in other subjects is, at best, mixed. Fundamentally, one needs to ask – why would music teaching increase math scores better than direct teaching of math itself? And for that matter, who takes classical ballet lessons to improve their geometry scores? The limitations of this type of research are discussed later in the review. For now, an in-depth description of a Pan-Canadian study that avoids many of the pitfalls of arts and achievement research is offered.

Learning Through the Arts: Research Findings from a Pan-Canadian Longitudinal Study

One of the most comprehensive arts education programs in Canada – and certainly the one with the most long-term and extensive empirical research – was developed in the mid-1990s by The Royal Conservatory of Music. Since its genesis in the former North York District Board of Education, *Learning Through the Arts* (LTTA) has become firmly embedded in schools across our nation. LTTA has received overwhelming support – millions of dollars in funding, alone, attests to the endorsement of the program by both the public and private sectors.

Why has LTTA been so well received by teachers, students, parents, and investors? There are at least three reasons. First, the program is an imaginative partnership between artists, teachers, and the broader community, often involving full-school implementation and producing impressive results. Second, the program incorporates the arts as entry points for learning across the curriculum, so teachers can engage their students through the arts and also enliven and deepen the teaching of other subjects. Third, artist and teacher professional development are key aspects of the work.

In the LTTA elementary education model, professional artists work directly with students, applying an art form to the teaching of concepts in another subject area. For example, a dancer might approach the teaching of a Grade 4 geometry unit through movement and modern dance. The artists begin their work with the students after developing lessons and units with the classroom teachers, based on the curriculum requirements for the particular subject and province (Elster, 2001).

The earliest research studies on LTTA indicated that the program was positively received by students, and resulted in more use of the arts by teachers, as well as increased administrative support for the arts (Wilkinson, 1998). Other programs that use the arts in conjunction with the teaching of other subjects have similarly demonstrated that positive changes occur for students as a result of such an approach. As Esquith (2006) so provocatively suggests, if our educational objectives include joy, compassion, and excitement, then the arts can be naturally connected to other curricular areas to enhance active participation and creativity (D'Agrosa, 2008).

In 1999, a comprehensive six-year research study on LTTA was launched in Vancouver, Calgary, Regina, Windsor, Cape Breton, and Corner Brook – the largest study of its kind ever undertaken in Canada. Over 20,000 students and their parents, teachers, and principals took part in the LTTA research, and several thousand additional students involved in other specialized programs (e.g., programs with a technology focus) also participated (Patteson, Upitis, &

Smithrim, 2005; Smithrim & Upitis, 2005a; Upitis & Smithrim, 2003). The research design involved a link to the Statistics Canada National Longitudinal Study on Children and Youth (NLSCY 1997, 1999), which further increased both its scope and validity.

The research was designed to determine the effects of the LTTA program on students, concentrating in particular on the students who were in Grade 4 at the beginning of the study and in Grade 6 at the conclusion of the study. There was particular interest in determining, through a quasi-experimental design, whether increases in mathematics and/or language scores would result after a three-year exposure to the LTTA program. Beliefs and practices of parents, artists, teachers, and administrators were also ascertained. In addition, the design enabled the researchers to examine children's attitudes towards the arts and schooling in general, and to determine how the arts were linked to their out-of-school activities, such as videogame playing, taking part in sports, and reading for pleasure.

The student sample for the primary study consisted of nearly 7,000 students in Grades 1 through 6, including students from LTTA schools as well as from two types of control schools. There were no differences between the students from all three types of schools at the beginning of the study in terms of their mathematics and language scores, arts attitudes and activities, and socio-economic status, as indicated by household income and mother's education level.

At the end of the three-year period, there were no significant differences between the Grade 6 students in the LTTA schools and students in two types of control schools on most measures for mathematics and language. Thus, the researchers concluded that involvement in the arts does not come at the expense of achievement in mathematics and language (Smithrim & Upitis, 2005a). This is an important finding, for it provides evidence against the view that other subjects will suffer if more time is devoted to music, visual arts, drama, and dance, with less time spent on math and language. This finding is also important because the way that it is phrased does not exaggerate the positive association between arts learning and achievement in other subjects.

But this conclusion does not tell the whole story of the achievement results. While there were no differences at the end of the three years on several mathematical tests of geometry and of applications of mathematical concepts, in fact, the Grade 6 LTTA students scored significantly higher on mathematical tests of computation and estimation than did students in the two types of control schools, equivalent to a difference of 11 percentile points in raw scores. As noted above, there were no baseline differences in mathematics achievement or in socio-economic status of the students in the three types of schools. Further, there was no interaction effect between socio-economic factors and program type. Thus, insofar as there was a program effect, the benefits of the LTTA program occurred for children of all socio-economic classes. This finding is of particular social significance, as it indicates that the arts benefit all children. For those children who are not able to seek arts experiences outside of normal school hours, one could argue that the arts become even more important in the school context.

The qualitative findings, based on interviews, observations, and focus groups, suggest that involvement in the arts contributes to engagement in learning. Students, teachers, parents, artists, and administrators talked about how the arts motivated children, referring to the emotional, physical, cognitive, and social benefits of learning through the arts.

Activities outside of school were also related to student achievement in math and language. Music lessons outside of school and reading for pleasure were significant contributing factors for achievement in math and language, after the effects of socio-economic status and the LTTA effects were considered. The data also indicated that some kinds of student activities were more likely to group together than others. For example, children who read for pleasure and took music lessons were also likely to belong to clubs and engage in organized sports, and were unlikely to spend their leisure time playing computer and/or videogames. But these associations are not necessarily causal; it could be that the child who likes to read also likes to be physically active and has parents who support the practice of taking music lessons outside of school. It does not necessarily mean that taking music lessons *caused* the same children to become good readers or active in clubs and sports.

Nearly all parents (90%) reported that the arts motivated their children to learn. This was the case not only in LTTA schools, but also in the control schools following the regular curriculum and in the schools with other specialized programs. Less than 1% of the parents questioned the importance of arts programs. Indeed, parents were eager to talk about the positive effects of arts education on their children. Seventy-seven per cent of LTTA parents, when asked if their child had reported school arts activities, gave concrete examples of arts activities their children had talked about at home (15% higher than parents in the other two types of schools). Some of these examples described events that had occurred up to three years earlier, that both the parents and children still recalled in vivid detail. Parents claimed that the LTTA program helped generate interest in the arts outside of school, provided greater incentive for their children to attend school, increased the self-confidence and self-esteem of their children, improved their children's social skills as they became less shy and more outgoing, provided them with opportunities to thrive, increased their skills in various art forms, and increased their enthusiasm for attending school (Upitis & Smithrim, 2003). Artists similarly observed a wide variety of benefits to students engaged in the arts, including the development of arts skills, the exploration of curriculum topics through the arts, and the foundation for a lifelong love of the arts.

By the end of the three-year period, there were significantly more LTTA teachers, as compared to teachers in the control schools, who believed that the arts were an effective way to teach language, science, and math. LTTA teachers reported a number of changes in classroom practices that reflected their increased commitment to teaching through the arts, and their growing skills and confidence in embedding the arts in their teaching practices. That is, teacher transformation was another important outcome of the LTTA program. In an earlier study, using a different model for enhancing arts education in elementary schools, Upitis, Smithrim, and Soren (1999) concluded that fundamental changes to teachers' practices and beliefs arose when teachers worked directly with artists and experienced the artistic process while making their own art; lasting changes occurred for approximately 20% of the teachers after two or more years of professional development. Among the benefits teachers ascribed to the program were confidence to try new things; a new appreciation of the planning and work involved in art-making; a revitalization of teaching in other subject areas; and a commitment to provide more time, materials, instruction, and support for students' art-making. Data were analyzed using a three-level matrix—developed by Upitis, Smithrim, and Soren (1999)—to assess and describe teacher transformation. The first level of the matrix identified conditions that were necessary, but not sufficient, for teacher transformation (e.g., exploration of new art forms and media). The second

level identified the potential for sustained transformation (e.g., teachers' changing perceptions of artists). The third level identified ways in which profound changes in beliefs and practices were manifested (e.g., long-term pursuits of new art forms). Evidence for all three types of transformation were found with the LTTA program (Patteson, 2005; Smithrim & Upitis, 2005a).

Principals of LTTA schools were more likely than principals in the control schools to personally consider the arts as very important. School district superintendents confirmed the positive effects of the LTTA program. All of the LTTA superintendents viewed the arts as critical in education, and viewed the program as a partial solution to what they identified as chronic under-funding and lack of expertise in elementary arts education (Upitis & Smithrim, 2003).

As demonstrated by the results, students in the LTTA program benefited from the program in many ways. Some benefits lent themselves to measurement, such as gains in the computation test scores. Others were more ephemeral, as students' and teachers' lives were positively transformed through the unique contributions that the arts offer (Smithrim & Upitis, 2005a).

Other Research Studies Linking Arts Education with Academic Achievement

A comprehensive American study, tracking 25,000 middle school students over a ten-year period, indicates that for all students – but particularly for those in the lower socio-economic group – academic performance, attitudes, and behaviour are all positively correlated with high arts involvement (Catterall, Chapleau, & Iwanaga, 1999). Among students from low socio-economic households, 43.8% of those highly involved in the arts scored in the top two quartiles in reading, compared to 28.6% of students with little or no arts engagement. When the entire student sample was considered, 70.9% of students with high arts engagement scored in the top two quartiles in reading, compared to 46.3% of the students with low arts engagement. Catterall et al. also found that the probability of being highly involved in the arts is twice as high for economically advantaged students – not a surprise, of course, but an argument for the importance of the arts in the public school system.

In a study conducted in Georgia involving over 600,000 students, it was found that in those school districts where the arts were a priority, students had higher test scores, were more likely to graduate with college diplomas, and were less likely to drop out from high school (Music in World Cultures, 1996). However, like the study by Catterall et al. (1999), this study was correlational: One can ascertain that higher test scores go along with arts activities, but there is no evidence that one causes the other. It is possible that arts learning contributes to higher test scores because students are more engaged in their schooling as a result of being enlivened by the arts. But it is also possible that students who are already high achieving are attracted to studying the arts. It is not possible to say if one condition causes the other, or if there is another underlying cause or series of causes that could explain the link between art and achievement.

In addition to the LTTA research, another study that allows causal conclusions to be drawn was conducted in Austria and Switzerland with elementary-aged students (Overy, 2000; Weber, Spychiger, & Patry, 1993). Like much of the empirical research on arts-related outcomes on other subjects, this study involved examining the effects of music learning on performance in other subject areas. The study was designed to determine the effect of music classes on academic achievement in mathematics and languages. At the end of a three-year study, researchers found

that students who had five music classes per week, rather than the more common one or two classes, performed as well as their peers in mathematics and better than their peers in language. This result is even more impressive when one considers that the extra time devoted to music classes was created by shaving off instructional time in mathematics and language. It is also of note that these results did not occur until three years had passed. One of the commonalities of studies demonstrating any kinds of links between arts and achievement – whether correlational or causal – is that such links are only robust when students have had extended arts experiences. For example, the College Entrance Examination Board reported that, in 1995, students who had participated in three- or four-years of extended course work in the arts scored 59 points higher in verbal and 44 points higher in math on the United States' Student Achievement Tests (SAT) (Fowler, 1996).

One of the few carefully conducted empirical studies linking academic achievement and dance was carried out by researchers from DePaul University and the 3D Group in Berkeley, California (McMahon, Rose, & Parks, 2003). The *Basic Reading Through Dance* program is a 20-session program for first grade students, designed to help students improve reading skills in such areas as phoneme segmentation. Using an experimental design, the researchers determined that, in fact, the students who were involved in the *Basic Reading Through Dance* program performed significantly better on all of the reading skills that were assessed as compared to their peers who were taught by traditional methods. This study is of particular importance, as it was not only carefully designed in order to be able to make causal conclusions, but also, is one of the few studies that focuses on dance. The authors claim that dance has considerable potential in developing the whole child as it gives a form for ideas to be internalized through experience (Dimonstein, 1985), and can be used with students at all stages of development to expand on meaning, which in turn, might enhance both memory and reading comprehension.

Other researchers have reported that students involved in the arts may exhibit higher academic achievement than their peers who are not involved in the arts (Catterall, 1998; Deasy, 2002; Fowler, 1996; Hamblen, 1993; Hetland, 2000; Luftig, 1995; Moore & Caldwell, 1993; Murfee, 1995; Music in World Cultures, 1996; Welch & Greene, 1995). However, much of this research is correlational in nature. That said, it is not unusual for researchers and others to go beyond the evidence to make causal claims about the arts and academic achievement (Winner & Cooper, 2000). Indeed, there is a plethora of other studies linking arts education with academic achievement, but very few provide evidence that studies in the arts transfer to other areas. Put another way, few studies show that there is a direct link between studying the arts and learning in other subjects, known in the cognitive psychology field as learning transfer. Even the LTTA study only showed transfer on one mathematics measure – for close to a dozen other measures in mathematics and language, there were no significant differences between the students in LTTA schools and those in the control schools. And there is the deeper problem so eloquently expressed by Koopman (2005), that the arts become appealing not for their intrinsic values such as those described by Dewey, Eisner, Dissanayake and others, but for their ability to “enhance something valued” (p. 86). For example, music and visual arts become important for contributions they might make to reading, and drama becomes important for developing verbal skills, rather than for the intrinsic joys that music, visual arts, and drama might bring (Koopman, 2005).

Such claims not only misrepresent the research results, but also undermine the intrinsic benefits of the arts themselves. That is, by implying that the arts might serve as handmaidens to other subjects, there is a danger that the arts will not be valued for their distinct contributions to education (Winner & Hetland, 2000). Although some arts educators have tried to strengthen the position of the arts by claiming that the arts can enhance the learning of other subjects, Winner and Cooper (2000) argue that it is foolhardy to expect that the arts can be as effective in teaching another subject as direct teaching of that subject. They further argue that “advocates should refrain from making utilitarian arguments in favor of the arts [because] as soon as we justify arts by their power to affect learning in an academic area, we make the arts vulnerable” (p. 66–67). Any justification for the arts should be made in terms of the important and unique contributions that arise from arts education. As noted earlier, the arts are particularly important for experiencing the joy of creating: for making the ordinary special; for enriching the quality of our lives; for developing effective ways of expressing thoughts, knowledge, and feelings; and for developing our humanity (Dissanayake, 2000, 2003; Eisner, 1994, 2002; Greene, 1995; Howard, 1992).

The LTTA national research adopted the kind of quasi-experimental design that Winner and Cooper (2000) recommend for studies on arts education and achievement. In addition, the LTTA research took into account the effects of socio-economic status on achievement by the inclusion of household income and mother’s education level in the analyses. Also, the research was designed to ascertain the distinct contributions of the arts to the development of the whole child. As Eisner (2002) proclaims, work in the arts gives people experience with situations in which there is no known answer, where there are multiple solutions, where the tension of ambiguity is not only tolerated but appreciated as fertile ground, and where imagination is honoured over rote knowledge. These factors were included in the LTTA research because it was hypothesized that such factors may contribute to any achievement gains exhibited in other subjects, possibly because of transfer, or possibly because of overall increased engagement in school (Burton, Horowitz, and Abeles, 2000). By engagement, Smithrim and Uptis (2005a) referred to the involvement of the sensorimotor or physical, emotional, cognitive, and social dimensions – the same dimensions that were identified as important to the development of the whole child in an earlier section of the review (Csikszentmihalyi, 1997; Noddings, 1992). Csikszentmihalyi also describes a transcendent dimension in which “the very real feeling we have after an aesthetic encounter that some kind of growth has taken place, that our being and the cosmos have been realigned in a more harmonious way” (1997, p. 25).

Other Contributions of the Arts Towards Educating the Whole Child

Thus far, the discussion of the extra benefits of the arts has centred on the possible relation between the arts and academic achievement. Another way of looking at the contributions of the arts is through the three-tiered model proposed by Eisner (1999), in which he differentiated direct outcomes from studies in the arts with ancillary outcomes – such as those associated with achievement. By giving credence to this literature, it is not in any way to suggest that the intrinsic benefits are not important: Rather, one can take the position that it is because of the intrinsic value of arts activity that other ancillary benefits occur.

The three levels or tiers proposed by Eisner (1999) are (a) arts-based outcomes, (b) arts-related outcomes, and (c) ancillary outcomes of arts education. Arts-based outcomes refer to the outcomes directly related to the subject matter an arts curriculum was designed to teach, such as learning to read standard musical notation, presenting a soliloquy, or critically responding to works of art (Ogden, 2008). Arts-related outcomes require creative perception of features in the general environment in ways that respond to pattern, form, and the aesthetic aspects of the observed phenomenon (Ogden, 2008). An example would be to characterize as music the chorus of spring peepers, because of the musical elements and functions contained in their call. The ancillary outcomes pertain to the transfer of skills and learning strategies that may be evidenced in non-arts tasks; for example, one might apply the habits of reflection and questioning, developed through a study of perspective drawing, to solving a problem in geometry. Other ancillary outcomes could include development of a sense of responsibility to the community, commitment to a high level of performance standards, and development of self-esteem (Ogden, 2008). It is this latter type of ancillary outcome that is considered in the following section of the review.

Risk-taking, Social Skills, and the Development of Self-Confidence

There is mounting evidence that experiences in the arts develop self-confidence. Researchers report, for example, that arts learning fosters co-operative, focused behaviour, problem-solving, and the development of fair-minded citizens (Jensen, 2001). Others claim that arts learning develops a sense of connection with others (Davis, 2008; Noddings, 1992). Studies also show a positive relationship between studies in the arts and benefits for at-risk students (Flohr, 2010), including a reduced risk of violent behaviour and significant improvements in self-esteem (Respress & Lutfi, 2006).

Burton, Horowitz, and Abeles (1999) conducted an extensive study on the wide range of benefits associated with the arts for elementary-aged students. They explored the impact of arts education on 2,046 public school students in Grades 4 through 8. The study involved students and staff at 12 schools in New York, Connecticut, Virginia, and South Carolina. A mixed-methods approach to data collection was implemented – including questionnaires, perception scales, and inventories – which provided quantitative data, as well as interviews, observations, and document analysis.

Burton and her colleagues found significant links between rich in-school arts programs and the creative, cognitive, and personal competencies needed for academic success. The results showed that students in “high-arts” groups performed better than those in the “low-arts” groups on measures of creativity, fluency, originality, and elaboration (Burton et al., 1999). The high-arts students were more co-operative, more willing to display learning publicly, and more likely to think of themselves as competent in the other academic subjects. These capacities were developed through elementary arts experiences, including intra-curricular (learning in, about, and through the arts), extra-curricular (such as school musicals), and community and school-based arts partnerships. The researchers conceptualized the arts competencies, such as the interweaving of intuitive, practical, and logical modes of thought, as “habits of mind” (Ogden, 2008). Burton et al. found that these habits of mind were accompanied by increased ability to exercise imagination, express thoughts and ideas, and take risks. As a result of the positive outcomes of

arts education, they called for the arts to become curriculum partners with other subject disciplines, contributing in rich and complex ways to the learning process as a whole.

Ogden's (2008) study confirmed similar positive outcomes for adults who took part in musical theatre during their elementary schooling. Ogden interviewed and surveyed adults ranging in age from mid-20s to mid-80s about their experiences in musical theatre in their elementary years. Decades after taking part in such performances, the adults reported that taking part in school theatre helped them develop a sense of community both inside and outside the school, and contributed to their growth in self-awareness, self-esteem, and confidence.

Interestingly, it is these kinds of benefits of arts education that are now being identified by teachers and principals as important – more important than potential benefits to achievement in other areas. The Hill Strategies Research report (2010) prepared for the Coalition for Music Education in Canada, based on survey results from 1,204 Canadian schools, reported that self-esteem, self-discipline, creativity, and musical ability were the four benefits that received the largest number of “very important” rankings in their survey (over 70% each), while overall academic achievement, analytical thinking, and problem-solving were as widely regarded as “important” – that is, they ranked lower in importance than musical abilities and creativity. It is encouraging to learn that the achievement benefits seem to be less prominent than they were a decade ago, moving us a step closer to a place where the arts are valued for the unique contributions they offer to child development.

Metacognition and the Arts

Self-Regulation

Self-regulation refers to a set of mental habits that include monitoring, guiding, directing, and evaluating one's own learning (Zimmerman, 2000). A number of studies indicate that self-regulated learners may achieve better academic results than those learners who have yet to develop strong self-regulatory skills (Rogers & Swan, 2004). Self-regulated learning (SRL) is widely recognized as a core feature of metacognition. The extent to which a person recognizes what enhances his or her learning and consciously chooses strategies to learn more effectively marks the degree of self-regulation present in the learning process (Zimmerman, 2000). Reviews of research have shown that SRL skills can be taught at both elementary and secondary levels (Dignath & Buettner, 2008; Dignath, Buettner, & Langfeldt, 2008).

Three cyclical phases of SRL involve both metacognitive and motivational components. The forethought phase includes task analysis, goal setting, and strategic planning. In the performance phase, task strategies are foregrounded. The third phase, self-reflection, includes self-judgment and self-reaction (Zimmerman & Tsikalas, 2005). These phases of SRL are represented in the Ontario Arts Curriculum (Ontario Ministry of Education, 2009) under the description and depiction of the creative process that appears throughout the document.

Research has demonstrated how studying the arts can support the development of self-regulation. Self-regulation in the arts includes paying attention, using feedback effectively, problem-solving

in a curricular context, taking risks, co-operating, and setting goals (Baum, Owen, & Oreck, 1997). Further, the general habits of practice, focus, and discipline have been found to transfer to other contexts when the teaching of self-regulatory strategies is an explicit instructional objective (Oreck, Baum, & McCartney, 2000). A recent study in two American high schools led to the identification of eight habits of mind associated with studio art-making (Hetland, Winner, Veenema, & Sheridan, 2007). Some of these habits of mind – most notably reflecting (which includes questioning, explaining, evaluating), persisting (or sustained attention) and envisioning – can also be described as self-regulatory behaviours.

In studies designed to assess how students use self-regulatory practices in learning to play a musical instrument, researchers have found self-regulation to be an important component of effective instrumental practice (Bartolome, 2009; Oare, 2011). Less skilled musicians have not developed the self-regulatory habits of advanced musicians (Nielsen, 2001). Advanced musicians are able to monitor their practice by focusing on aspects of their playing that can be improved, and by seeking help from others when facing difficulties (McPherson & Renwick, 2001). These instrumentalists employ other self-regulating strategies as well, including setting clear, measurable, and timely goals; creating effective strategies for practice; developing ways of self-monitoring progress and adjusting accordingly; structuring optimal learning conditions; seeking out advice and information as needed; and displaying persistence during times of struggle (Oare, 2011). Arguably, these habits of practice are ones that serve musicians well in other contexts, and may explain, in part, why there can be an association between engaged study in the arts and achievement in other subjects as described in the previous section of the review.

Memory, Motivation, and Attention

In a three-year study of young children aged two and a half through seven years, Posner, Rothbart, Sheese, and Kieras (2008) determined how training in the arts influences other self-regulatory processes through the underlying mechanism of attention. Children in the study were randomly assigned to control and experimental groups and data were collected through questionnaires for teachers and parents, along with observations of the children. The findings resulted in a general framework for describing how arts training influences cognitive processes. Posner et al. found that heightened motivation to perform or take part in an arts activity produced the sustained attention necessary to improve performance.

A quasi-experimental two-part study on musical skill and memory explored the effects that training in music and training in acting have on skills associated with long- and short-term memory (Jonides, 2008). The first study compared 22 college-aged participants who were matched demographically but differed in musical experience. Eleven of the study participants had at least ten years of musical experience, and at the time of the study, were already practicing at least ten hours per week. The other 11 had studied an instrument for less than a year. The second study compared 21 actors trained in live theatre performance with 24 demographically similar participants who did not participate in theatre. Verbal tests for both long- and short-term memory functions and fMRI (functional magnetic resonance imaging) were used to collect the data. The findings suggested that the musicians applied strategies of rehearsal to maintain information in memory more effectively than non-musicians. Similarly, the actors effectively applied strategies for extracting semantic themes from verbal material, and these strategies resulted in better memory of the material in question. Put another way, the development of these

particular arts-related skills led to heightened use of effective strategies for memorization, which in turn led to better memory.

In summary, there is research evidence supporting Eisner's (1999) three-tiered model for the effects of arts education, namely, arts-based outcomes, arts-related outcomes, and ancillary outcomes. That said, it is important, also, to remember that these justifications are fundamentally instrumental in nature, and do not speak to the unique contributions of the arts. As Koopman (2005) cautions:

Insofar as they can be substantiated, positive non-artistic outcomes can play a significant role in the justification of education in the arts. But as long as we rely only on instrumental values, on the ways the arts are beneficial to non-artistic aspects of life, our justification remains vulnerable; for it can always be questioned whether the benefits are really significant and durable, and whether the arts are the most efficient way of bringing about the results. (p. 96)

With this caution, the following section deals with the last of the instrumental outcomes for an arts rich education: outcomes that relate positively to the economy and the workplace.

The Arts, The Economy, and The Workplace

The great importance of education in the arts is the ability acquired to make connections between seemingly isolated events or concepts, sometimes referred to as lateral thinking.

Leonard Lee, President, Lee Valley Tools

The Canadian workforce requires employees to think critically and creatively, solve problems, communicate well, adapt to changing circumstances, and continue to learn throughout their careers (Conference Board of Canada, 2011). Indeed, those who think with imagination and engage in continuous learning – including online learning – will be the most valued workers of the future. An education rich in the arts nurtures precisely those skills and attitudes that are required in the contemporary workplace. Warren Goldring, co-founder of the Canadian investment company AGR Management, gave the following advice, “Don't overlook education in the arts. There has been a tendency for students today to study the hard sciences, business, or computers. An arts training will provide the ability to think logically and that's the commodity that is in the shortest supply in business ... studying the arts will develop skills that can help you in any career” (cited in Campbell & Townshend, 1997). Charles Baillie, former Chair and CEO of the TD Bank Financial Group, similarly heralded the importance of the arts, stating that by investing in children and the arts, “we are developing Canada's great minds of the future.” This comment was made at The Royal Conservatory of Music on February 28, 2001, when it was announced that the TD Bank Financial Group was investing a further \$1.5 million in the *Learning Through the Arts* program. At the same press conference, Ontario Minister of Education Janet Ecker announced a \$3.65 million commitment to the same program, a provincial commitment that remained in place for years thereafter.

There are direct economic links between the arts and the economy as well. The Canadian Arts Presenting Association/l'Association canadienne des organismes artistiques (CAPACOA)

represents well over 100 professional for-profit and not-for-profit presenters, presenter networks, artistic companies, agents, managers, and other stakeholders comprising the presenting and touring arts sector in Canada. Their members represent more than 2,000 professional and volunteer organizations, associations, and companies. In a brief prepared by the CAPACOA (2009) to the Standing Committee on Finance, it was made clear that the arts and culture sector of the Canadian economy is vital to growth in prosperity. The CAPACOA cited studies indicating that the arts represent 7.4% of the gross domestic product, that the arts help promote an engaged citizenry, that the arts promote voluntarism, philanthropy and a sense of community, that the arts improve quality of life for Canadians, and that the arts account for 3.9% of national employment (CAPACOA, 2009). The CAPACOA report closes with the observation that the arts form the foundation on which the creative economy is built. They note that the cultural sector provides jobs to more Canadians than the automotive sector, and generates an ever-increasing contribution to Canada's GDP. It is important to note that the CAPACOA defines the arts much more broadly than is the case in the current Ontario curriculum, more in keeping with how the arts are framed in this review.

In those jurisdictions where cost-benefit analyses have been conducted to ascertain the economic impact of the arts and creative industries, it is abundantly clear that regions with thriving arts programs and industries benefit in the areas of job creation, city pride and prestige, increased property values, and support to other businesses (Economic Development Edmonton, 2005; Kelly & Kelly, 2000). In addition, numerous social benefits have been documented in these analyses. These social benefits include the building of community networks, contributing to the education of children, transforming the responsiveness of public service organizations, and contributing to quality of life for people with poor health (Kelly & Kelly, 2000). The arts and culture play an important role in seven of the 12 determinants of health defined by Health Canada, which include personal confidence, social connectedness, and supportive physical environments (Cooley & Associates, 2007).

We see, then, that the arts are essential to our economy, not only in terms of the revenue and employment opportunities generated in the cultural sector, but also in terms of the sensibilities that studies in the arts bring to a wide spectrum of employment opportunities (Tabet, 1998). They are also vital in terms of promoting good health. We are living in an age where self-directed, problem-based learning is becoming the norm throughout the workplace, and the arts have a role to play here. It is precisely in such an age that the skills and attitudes engendered by arts education are most valuable: Students who have an education rich in the arts will be best prepared to form the creative responses necessary to succeed and grow in the new learning and workplace, and in so doing, ultimately come to lead healthy and fulfilled lives.